REVISION OF THE GENUS *MACROPOSTRONGYLUS* AND DESCRIPTIONS OF THREE NEW GENERA: *POPOVASTRONGYLUS*, *DORCOPSINEMA*, AND *ARUNDELIA* (NEMATODA: TRICHONEMATIDAE)

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Summary

MAWSON, P. M. (1977) Revision of the genus *Macropostrongylus* and descriptions of three new genera: *Popovastrongylus*, *Dorcopsinema*, and *Arundelia* (Nematoda: Trichonematidae). *Trans. R. Soc. S. Aust.* **101**(2), 51-62, 31 May, 1977.

The genus *Macropostrongylus* is redefined and revised. Species retained in the genus are *M. macropostrongylus*, *M. macrostoma*, *M. yorkei*, *M. lesouefi*, and *M. irma*. New genera are proposed: *Popovastrongylus* for *M. wallabiae*, *M. pearsoni*, and *M. irma* n.sp.; *Dorcopsinema* for *M. dorcopsis*; *Arundelia* for *M. dissimilis*. *M. australis*, *M. cornutus*, and *M. minor* are referred to *Cloacina*; *M. labiatus* to *Zoniolaimus*, and *M. baylisi* to *Macropostrongyloides*. The genus *Gelanostrongylus* is suppressed. *Cloacina daveyi* nom.nov. is proposed for *C. australis* Johnston & Mawson nec *C. australis* (Yorke & Maplestone).

Introduction

As a result of the availability of new collections of nematodes from kangaroos and wallabies it is now possible to revise some descriptions, in particular those of species attributed to *Macropostrongylus* Yorke & Maplestone. Where possible comparison has been made with type material, and a complete revision of the genus has been undertaken. New species undoubtedly await description, as the parasites of macropod marsupials, especially those in western and northern parts of Australia, have seldom been collected systematically. It is hoped that the present work will aid future studies.

Most measurements of specimens have been omitted from descriptions, they are available on request from the author or Librarian.

Historical

Although it has not been possible to examine the type material of *M. macropostrongylus* and *M. australis*, the species for which the genus *Macropostrongylus* was erected by Yorke & Maplestone (1926), specimens so identified by Baylis (1934) have been studied. The species are re-described from this material and from specimens from the same host (*M. agilis*) from Papua. The revised generic diagnosis is given below. From Yorke & Maplestone's figures *M. australis* appears referable to *Cloacina* Linstow 1898; the specimens identified by Baylis are certainly *Cloacina* sp. As *C. australis* (Yorke & Maplestone) predates *C. australis* Johnston & Mawson (1938), a new name must be given to the latter, and *C. daveyi* is proposed.

Baylis (1927) added *M. yorkei* to the genus; this is redescribed below from the type host.

The paratype material of four new species assigned to *Macropostrongylus* by Davey & Wood (1938) has been re-examined. *M. cornutus*† and *M. minor* belong to *Cloacina*, as was suggested from a study of the figures by Johnston & Mawson (1939). *M. labiatus* belongs to the genus *Zoniolaimus*, close to *Z. setifera* Cobb, 1898. *M. macrostoma*, partially described below is a true *Macropostrongylus*.

Paratype material of *M. dorcopsis* Baylis, 1940, from a wallaby in New Guinea has been examined, and is considered so different from *Macropostrongylus* spp. as to necessitate the erection of a new genus, *Dorcopsinema*, described below.

Johnston & Mawson in several papers (1939, 1940) added five species: *M. dissimilis*, *M. irma*, *M. lesouefi*, *M. pearsoni*, and *M. wallabiae*. Of these, *M. dissimilis* is referred to

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† *M. cornutus* has recently been described by Mawson (in press).

Arundelia n.g., *M. wallabiae* and *M. pearsoni* to *Popovastrongylus* n.g., and the others retained in *Macropostrongylus*.

Yamaguti (1961) placed *M. lasiorhini* Mawson, 1955, from a wombat, as the type of *Macropostrongyloides*. *Macropostrongylus baylisi* Wood, 1930, is now transferred to this genus.

Macropostrongylus macropostrongylus was described as having a leaf crown. Popova (1952) erected a new genus *Gelanostrongylus* for species which had been assigned to *Macropostrongylus* but in which the leaf crown is absent. She placed the following species in the new genus; *M. macrostoma* (type species), *M. dissimilis*, *M. labiatus*, *M. irma*, *M. lesouefi*, *M. wallabiae*, and *M. dorcopsis*. However, the morphology of *M. macrostoma* is essentially similar to that of *M. macropostrongylus*, and therefore *Gelanostrongylus* cannot stand. However it certainly appears that there are two distinct groups of species left in *Macropostrongylus*, even after those belonging to other genera, as noted above, are excepted. The species *M. macropostrongylus*, *M. macrostoma*, *M. lesouefi*, *M. yorkei* and *M. irma* form a natural group, as do *M. wallabiae* and *M. pearsoni*. A new genus, *Popovastrongylus*, is now proposed for the latter group.

In *Macropostrongylus* the perioral cuticle forms eight lobes, the buccal capsule is ridged longitudinally and ends anteriorly in eight small projections, and the oesophagus is more or less cylindrical ending in an elongate bulb. In *Popovastrongylus* the perioral cuticle continues into the buccal cavity without forming lobes, the buccal capsule is more or less cylindrical (or oval in section) without ridges and without anterior projections, and the oesophagus is relatively shorter, narrows suddenly in its posterior half, and ends in a bulb. *Macropostrongyloides* is distinguished from *Macropostrongylus* by the presence in the buccal capsule of four large teeth, by the shape of the oesophagus, and by the position of the externo-dorsal ray, which rises from the dorsal ray. *Macropostrongylus* spp. and *Popovastrongylus* spp. occur in the stomach of the host; *Macropostrongyloides* spp. in the large intestine.

Macropostrongylus Yorke & Maplestone

Generic diagnosis (revised):

Trichonematidae:

Anterior end with four submedian setigerous papillae and two lateral elevations bearing amphids; buccal capsule and mouth more or less laterally compressed; perioral cuticle forming eight lobes; buccal capsule folded longitudinally into eight ridges which, variously thickened, project anteriorly under the cuticular lobes; oesophagus long, slender, with oval terminal bulb. Male: dorsal lobe of bursa longer than laterals, ventral lobes distinct from laterals and more or less joined ventrally; externo-dorsal rays arising separately or with laterals, dorsal ray bifurcating before mid-length, each branch giving off a lateral branch; spicules alate; gubernaculum present. Female: Tail short, conical, vulva near anus. Parasites of the stomach of macropod marsupials. Type species: *M. macropostrongylus*; other species: *M. macrostoma*; *M. yorkei*; *M. lesouefi*; *M. irma*.

In *Macropostrongylus* the anterior end is simple, without a collar roll. A slightly raised ridge surrounds the cephalic papillae. The submedian papillae; usually setigerous, and the lateral elevations are more or less prominent. Lateral compression of the mouth and buccal capsule, but not of the entire lateral end, is variable. Anteriorly the eight longitudinal ridges of the buccal capsule project as lobes but these are covered by the corresponding cuticular perioral lobe, forming structures which are apparently erectile (Fig. 2), and the buccal capsule varies in shape with this, giving a more or less open mouth. The lobes thus form a sort of leaf crown, but one quite distinct in appearance from that in *Cloacina* and *Murshidia* though both are formed from the peribuccal and perioral cuticle.

Macropostrongylus macropostrongylus Yorke & Maplestone

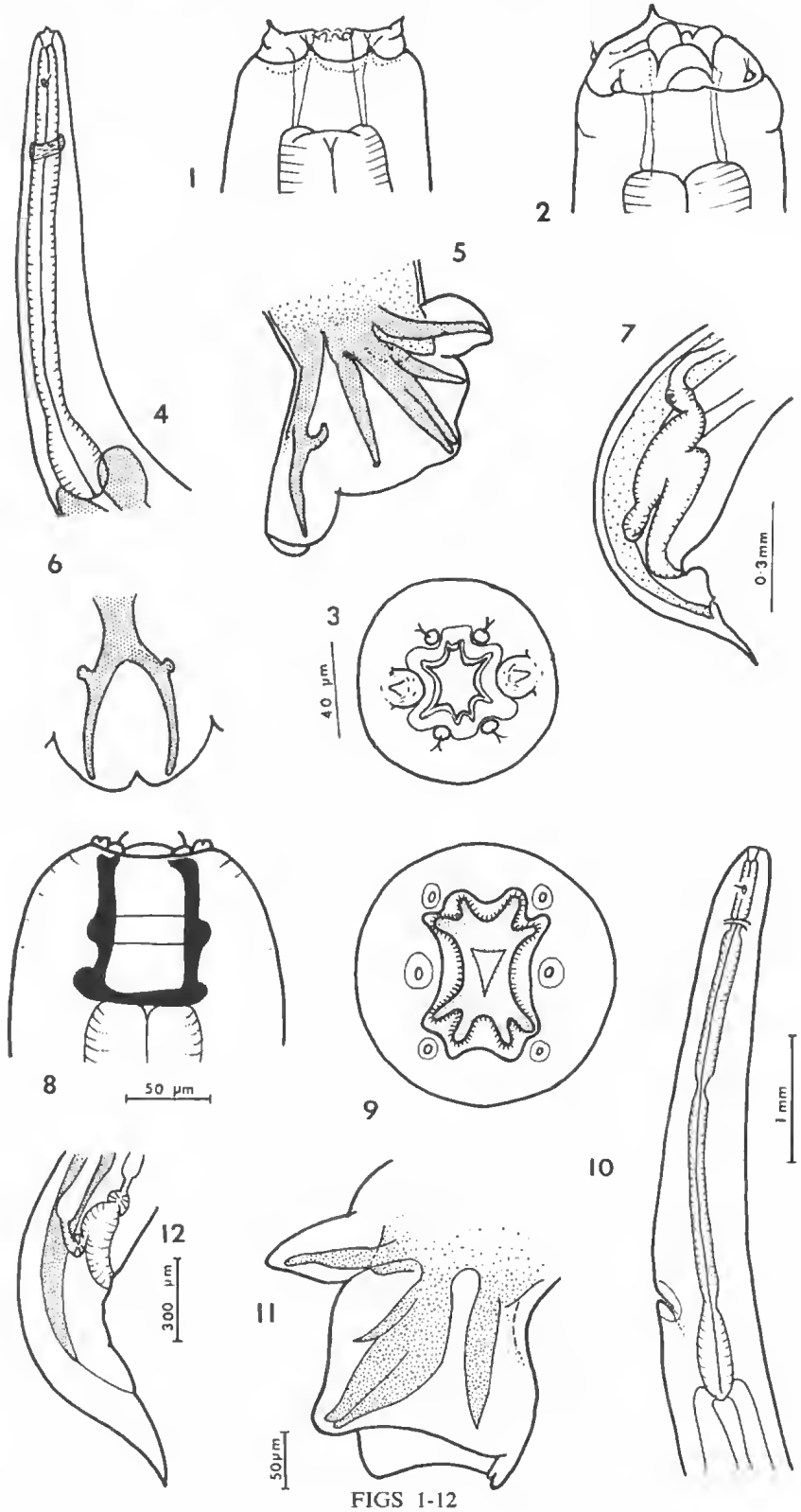
FIGS 1–7

Yorke & Maplestone, 1926, from *Macropus* sp., Qld.

Baylis, 1934 p. 129, from *M. agilis*, Qld.

Johnston & Mawson, 1939 p. 143, *M. agilis*, *M. wellsbyi*, Qld, 1939 p. 209, *M. agilis*, Qld.

Figs 1–7. *Macropostrongylus macropostrongylus*. 1, median view of head; 2, lateral view of head, with mouth widely opened; 3, en face view of head; 4, oesophageal region; 5, bursa; 6, dorsal ray; 7, posterior end of female; Figs 1-3 to same scale. Figs 4, 5, and 7 to same scale. Figs 4, 7, 6 to same scale. Figs. 8-12. *Macropostrongylus macrostoma*. 8, anterior end; 9, anterior end, en face; 10, oesophageal region; 11, bursa; 12, posterior end of female. Figs 8 and 11 to same scale.



FIGS 1-12

Host and locality: *M. agilis*, from Weam, Papua New Guinea (BBM-NG-50820, BBM-NG-50798); *Thylogale brunii*, from Weam, Papua New Guinea (BBM-NG-50850).

The specimens from Papua New Guinea are shorter than those originally described, but they agree generally with them, and with those identified by Baylis (Yeerongpilly N5.28.1.2) and others recorded by Johnston & Mawson. Some redescription of the anterior end can now be made. (Figures were drawn from Papua New Guinea material from *M. agilis*.)

Amphids lie on apices of two prominent lateral elevations. Buccal capsule, somewhat laterally compressed, is not strongly chitinised; the two largest of the longitudinal ridges are lateral, and the two smallest dorsal and ventral. Ratio length: spicule length 3.0–3.6, and of length: oesophagus 3.3–4.2.

Cervical papillae thread-like, about twice the length of buccal capsule from anterior end. Egg c.a. 80 x 40 μm.

Macropostrongylus macrostoma Davey & Wood

FIGS 8–12, 47

Davey & Wood, 1938 p. 261, from *Macropus robustus*, Queensland.

Macropostrongylus yorkei (*non* Baylis): Johnston & Mawson, 1939 p. 143, p.p., from *M. parryi*

Gelanostrongylus macrostoma: Popova, 1952 p. 176.

The paratype material of this species has been examined and figured.

The anterior end is similar to that of *M. macropostrongylus*. The main differences between these species are:

1. Buccal capsule longer and more strongly chitinised in *M. macrostoma*, and its anterior projections more strongly developed and reinforced by extra sclerotisation in the form of an encircling belt at about its midlength, and by a thickening around base, greater dorsally.
2. Oesophagus swollen in middle third of its length in *M. macrostoma*; not swollen in *M. macropostrongylus*.
3. Form of the dorsal ray differs.
4. In *M. macropostrongylus* distance between vulva and anus is less than tail length; in *M. macrostoma* it is distinctly greater.

Macropostrongylus yorkei Baylis

FIGS 13–19, 51

Baylis, 1927 p. 215, from *Macropus* sp., Townsville, Qld; 1934 p. 129, from *M. agilis*, Burketown, Qld.

Johnston & Mawson, 1939 p. 143; 1939 p. 209, from *M. agilis*, Qld.

Host and locality: *Macropus agilis* (stomach), Tipperary Stn, N.T.

The material identified by Johnston & Mawson is scanty and in poor condition. That reported from *M. parryi* by Johnston & Mawson (1939) is now referred to *M. macrostoma* (q.v.), and the single female worm from *M. wellsbyi* (now *Wallabia bicolor wellsbyi*), probably belongs to an as yet undescribed genus. The type and paratypes have not been seen. The following partial redescription is based on some recently collected specimens of *M. agilis*.

Length of male, 6.5–8.6 mm, of female 14.2–20.5. Anterior end outlined by a low ridge, oval in *en face* view, with the long axis dorsoventral. Within this, submedian cephalic papillae and amphids are on slightly raised cuticular swellings. Buccal capsule more rounded-triangular than oval at its base, the longitudinal ridges developing in its anterior half and surrounded near base by a sclerotised ring. The whole area inside the anterior ridge probably eversible. Eversion is associated with an upthrust of the anterior end of the oesophagus, while the buccal capsule appears to widen, so becoming a longer oval in transverse section (Fig. 14).

Oesophagus long (body length: oesophagus 3.6–4.3 in male, 5.8–6.2 in female), more or less cylindrical anterior to spindle-shaped terminal bulb. Nerve ring surrounds oesophagus at about a third to a quarter of its length from head in male, less in female; thread-like cervical papillae lie about half way between anterior end and nerve ring, and excretory pore close to posterior end of oesophagus. Tips of spicules enlarged and alate. Ratio length: spicule 10.9–14.0. Eggs measure 95–110 x 53–55 μm.

The species is most like *M. macrostoma*, differing chiefly in the size and form of the buccal capsule.

Macropostrongylus lesouefi Johnston & Mawson

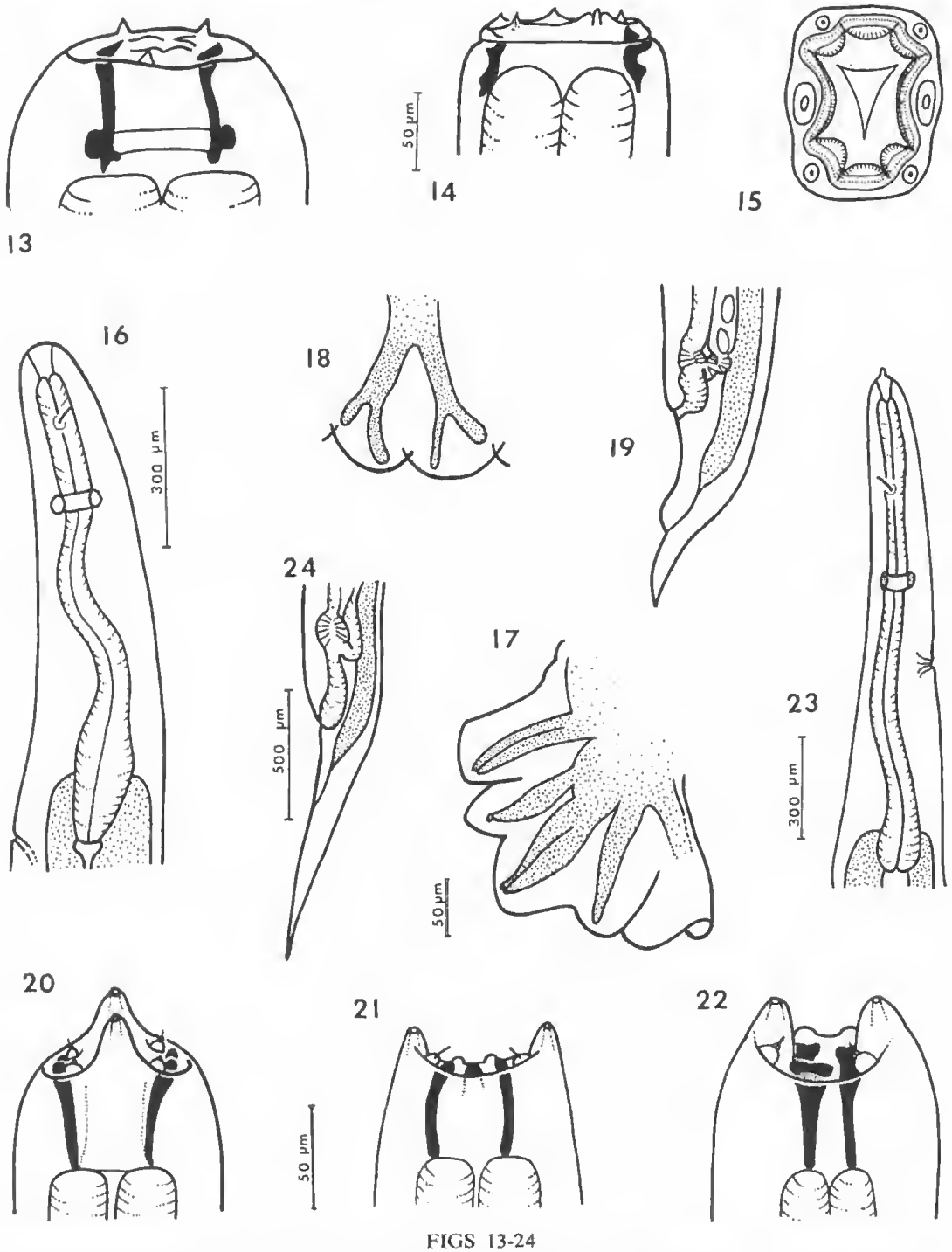
FIGS 20–24

Macropostrongylus lesouefi Johnston & Mawson, 1939 p. 525, from *Macropus rufogrisea*, Sydney Zoological Gardens.

Gelanostrongylus lesouefi: Popova, 1952, p. 769.

No fresh material of this species is available. The type and paratype material have been examined, and some redescription is possible.

The species is distinguished by the very prominent lateral cuticular elevations, bearing at their apices the openings of the amphids. Buccal capsule laterally compressed only in some



FIGS 13-24

Figs 13-19. *Macropostrongylus yorkei*. 13. head of male; 14. head of female, in mouth wide open position; 15. head, en face; 16. oesophageal region; 17. lateral view of bursa; 18. dorsal ray; 19. posterior end of female. Figs 20-24. *Macropostrongylus lesouefi*. 20. anterior end, lateral view; 21 and 22. anterior end in dorsal view, with mouth in closed and open positions, respectively; 23. oesophageal region; 24. tail of female. Figs 13-15 to same scale. Figs 17-18 to same scale. Figs 19 and 23 to same scale. Figs 20-22 to same scale.

specimens, suggesting that this is a movement connected with feeding. Anterior projections of the capsule strongly developed, those in dorsal and ventral positions directed outwards.

Oesophagus long and more or less cylindrical, with elongate terminal bulb. Nerve ring further back than in other species, almost at the end of the anterior half of the oesophagus. Excretory pore just behind nerve ring; cervical papillae half way between nerve ring and head. In the only specimen in which the spicules are intact, they measure 480 μm.

Anus of female closer to vulva than to posterior end of body; vagina short. Eggs 145–155 x 70–75 μm.

Macropostrongylus irma Johnston & Mawson

Johnston & Mawson, 1940 p. 363, from *Macropus irma*, W.A.

Gelanostrongylus irma: Popova, 1952 p. 769.

These specimens are immature, probably fourth stage larvae, as the vulva is not patent. Two referred to as "females differing somewhat" are in fact fourth stage larval males. This species should perhaps be declared a *nomen nudum*, but it may be possible to recognise it should fresh material become available from the same host species. For the time being it is retained.

Key to species of *Macropostrongylus* (excluding *M. irma*).

1. Amphids on very prominent cuticular elevations 2
   Elevations bearing amphids not higher than submedian papillae 3
2. Nerve ring about ⅓ length of oesophagus from head; lateral branches leave dorsal ray immediately after its bifurcation ..... *M. macropostrongylus*
   Nerve ring at nearly ½ length of oesophagus from head; lateral branches leave dorsal ray near edge of bursa ..... *M. lesoueffi*
3. Buccal capsule longer than its width ..... *M. macrostoma*
   Buccal capsule not longer than its width ..... *M. yorkei*

Popovastrongylus n.gen.

Syn. *Macropostrongylus* Yorke & Maplestone p.p.

Trichonematidae: Anterior end with cuticular collar bearing four setigerous submedian papillae and two amphids; buccal capsule and mouth opening circular to oval; extension of perioral cuticule lines buccal cavity and may project as shelf inside it; buccal capsule thickest in its midlength, anterior border without projections; oesophagus cylindrical anteriorly, usually narrowing abruptly in second half, ending in bulb. Male: spicules alate, gubernaculum present; bursal lobes distinct, ventrals not joined, ventral rays separate from laterals, externo-dorsals arise with laterals, dorsal ray bifurcate, each branch with shorter lateral off-shoot. Female: tail long, vulva near anus. Parasites of the stomach of macropod marsupials.

Type species: *P. wallabiae*, syn. *Macropostrongylus wallabiae* Johnston & Mawson, 1939.

Other species: *P. pearsoni*, syn *Macropostrongylus pearsoni* Johnston & Mawson, 1940; *P. irma*, n.sp.

Popovastrongylus wallabiae (Johnston & Mawson)

FIGS 25–30, 49

Macropostrongylus wallabiae Johnston & Mawson, 1939 p. 526, from *Wallabia bicolor* (*M. wallabatus*) from N.S.W.

Gelanostrongylus wallabiae: Popova, 1952 p. 785.

Host and locality: *Macropus rufogriseus*, Logan Village, Qld; Launceston, Tas.

Collections of this species from three hosts in the same area in Queensland and in one from Tasmania permit an elaboration of the original description, in regard to head structure and shape of the dorsal ray.

The small anterior collar is less obvious in some specimens than in others, as it appears partly retractable. In the type specimens a narrow shelf is present towards the anterior end of the buccal cavity, but this is not clear in all specimens. Figs 25–30 were drawn from the type specimens. In the new material from *M. rufogrisea* the eggs measure 105 x 50 μm. The length:spicule ratio is 9.0.

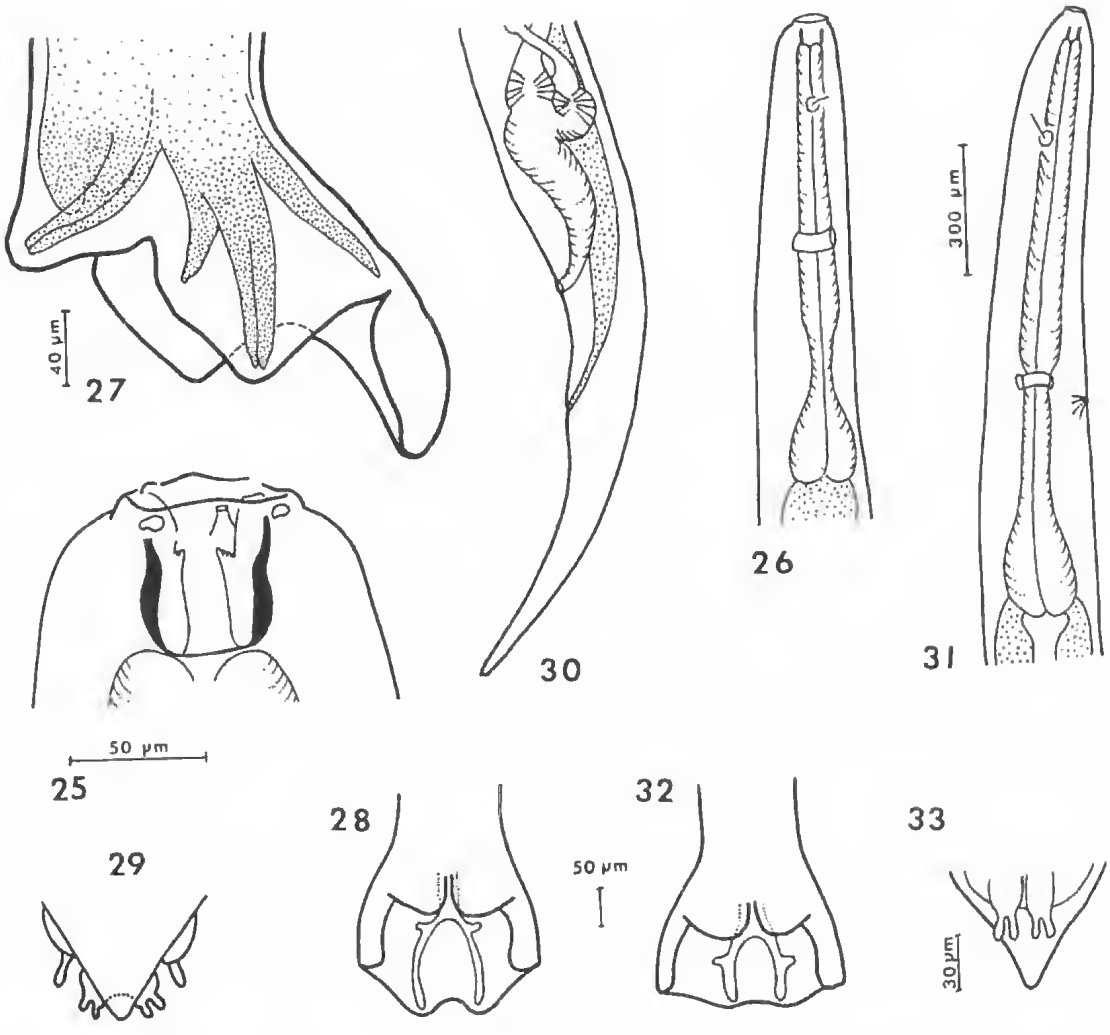
Popovastrongylus pearsoni (Johnston & Mawson)

FIGS 31–33, 48

Macropostrongylus pearsoni Johnston & Mawson, 1940 p. 95; Mawson, 1971, 171; from *Petrogale penicillata pearsoni* from Pearson I., S. Aust.

Host and locality: *Macropus eugenii*, Kangaroo I., S. Aust.; *Macropus rufogriseus* from Launceston, Tasmania.

Popovastrongylus pearsoni was redescribed by Mawson (1971). It is similar in many features to *P. wallabiae*, particularly in the structure of the head. As both species have now been identified from the same host species in Tasmania (though not as yet from the same host specimen) the main features distinguishing them are given:



FIGS 25-33

Figs 25-30. *Popovastrongylus wallabiae*. 25. Head; 26. oesophageal region; 27 and 28. bursa, lateral and ventral views; 29. genital cone, ventral view; 30, posterior end of female. Figs 31-33. *Popovastrongylus pearsoni*. 31, oesophageal region; 32, bursa; 33, genital cone, dorsal view. Figs 26, 30 and 31 to same scale. Figs 28 and 32 to same scale. Figs 29 and 33 to same scale.

1. In *P. wallabiae* terminal bulb of oesophagus is spherical; in *P. pearsoni* it is more oval.
2. In *P. wallabiae* nerve ring surrounds oesophagus well in front of the point where it narrows, in *P. pearsoni* it lies at this point.
3. Dorsal lobe of bursa is much longer than lateral lobes in *P. wallabiae*, but about the same length in *P. pearsoni*.
4. Shape of the dorsal ray differs (Figs 28, 32).
5. Appendages of the dorsal lip of the cloaca, on the genital cone, differ (Figs 29, 33).
6. Spicules rather shorter in relation to body length in *P. wallabiae*.

Popovastrongylus irma n.sp.

FIGS 34–40, 50

Host and locality: *Macropus irma* (stomach), from Perth, W.A.

Males 8.7–10.1 mm long, females 11.1–13.0 mm. The cephalic papillae, borne on a well developed cuticular collar, are not prominent. The buccal capsule, its base thickened by an outer sclerotised ring, is a little more oval than circular in transverse section, with the long axis not exactly dorso-ventral; it lacks an internal shelf.

The oesophageal bulb is slightly elongate. Ratio length: oesophagus is 7.2–8.4 in male, 7.8–9.1 in female. Nerve ring surrounds oesophagus at the point of narrowing, and excretory pore is behind this; the thread-like cervical papillae lie shortly behind anterior end.

Spicules alate and end in a rounded tip, without enlargement; ratio length: spicule is 6.7–8.6. Bursa voluminous, all lobes of more or less even length; ventral lobes joined. Genital cone bears two small bilobed processes on dorsal lip of cloaca. Bursal rays are shown in Figs 37, 38.

The female has an unusual constriction between the vulva and the anus; in older females the body is markedly swollen in the region of the vagina, as far back as this constriction. Tail conical, ending in a point. Eggs absent in all specimens.

This species is distinguished from *P. wallabiae* and *P. pearsoni* chiefly by the absence of a "shelf" in the buccal cavity and by the shape of the dorsal ray.

Key to species of *Popovastrongylus*:

1. Nerve ring surrounds oesophagus distinctly anterior to its narrowing ..... *P. wallabiae*
   Nerve ring surrounds oesophagus at point of narrowing 2
2. Lining of buccal capsule forms distinct "shelf" ..... *P. pearsoni*
   Lining of buccal capsule without "shelf" ..... *P. irma*

Arundelia n.gen.

Trichonematidae: Cloacininae: Small worms with heavily ringed cuticle; anterior end with small cuticular collar, four small, bipartite, submedian, cephalic papillae; external leaf crown of 6 elements; lips absent; buccal capsule short, stoutly built, circular in transverse section; base of buccal cavity with large hollow oesophageal projection, associated with dorsal duct in oesophagus: oesophagus widening posteriorly but without bulb. Male: bursa short, wide; ventral rays arising together, ventro- and mediolaterals arise together, postero-lateral and externo-dorsals arise separately; dorsal ray shown in the E.S. Micrographs (Fig. 52). They bifurcates twice, spicule stoutly built, alate; gubernaculum and telamon present. Female: vulva close to anus. Parasites of the stomach of macropod marsupials.

Type species: *A. dissimilis*, syn. *Macropostrongylus dissimilis* Johnston & Mawson, 1939.

A small dorsal tooth associated with an oesophageal duct has been described in the buccal capsule in *Cloacina dahli* Linstow, 1898 and in *C. mundayi* Mawson, 1972, but in *Cloacina* an internal leaf crown, arising from the baccul capsule, is present.

In *Popovastrongylus* species the buccal capsule is oval to circular in section and a leaf crown is absent, but there is a cuticular lining inside the buccal capsule, no tooth in the buccal cavity, and the oesophagus is quite a different shape. In *Macropostrongylus* the shape of the buccal capsule is quite different.

Arundelia dissimilis (Johnston & Mawson) n.comb.

FIGS 41–44, 52

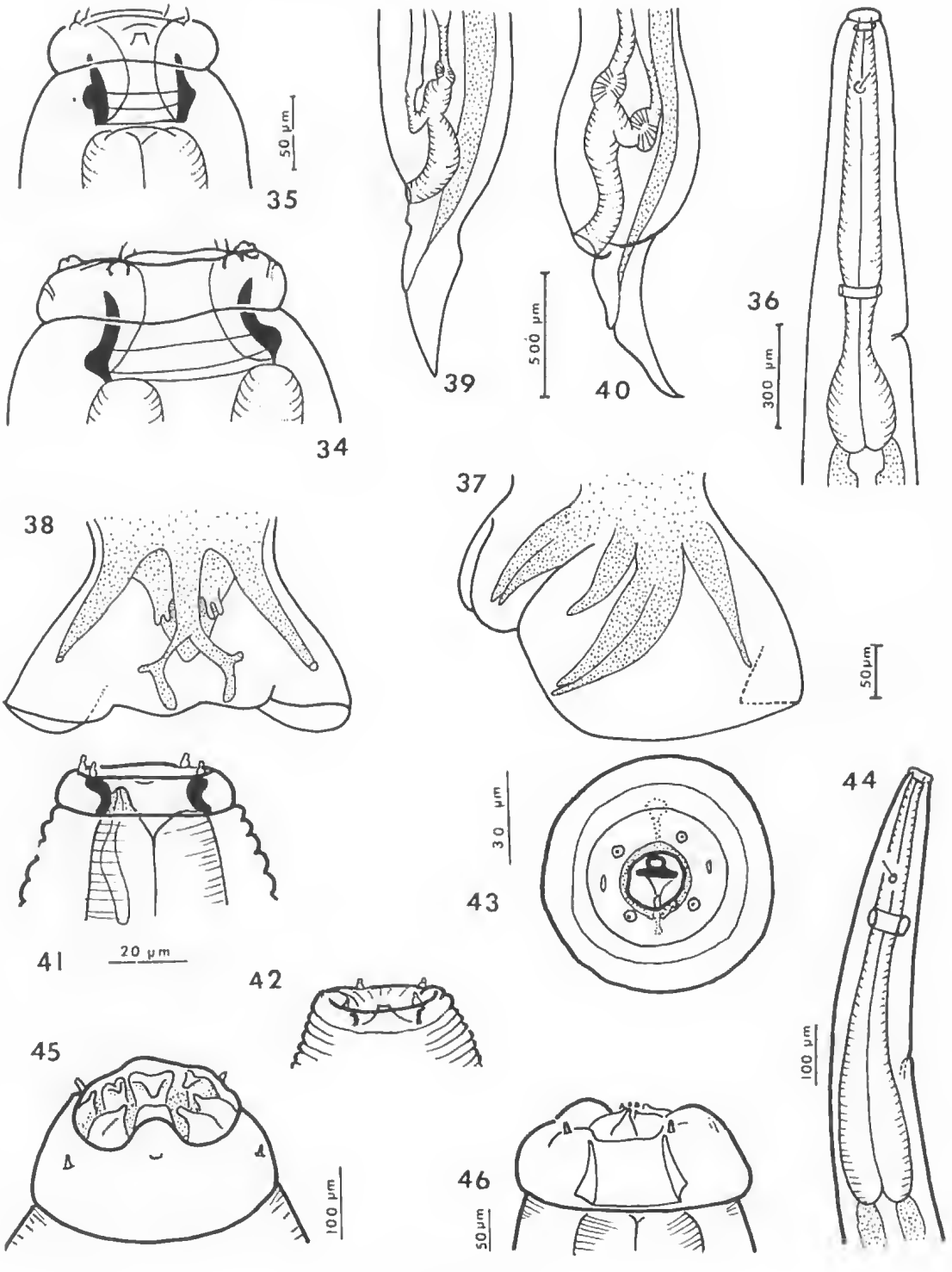
Macropostrongylus dissimilis Johnston & Mawson, 1939 p. 526, from *Wallabia bicolor* (*M. ualla-batus*), N.S.W.

Host and localities: *Wallabia bicolor*, from Keyneton, Bemm River, Yarra Valley, and Dartmouth, Victoria.

This species is apparently a relatively common though not numerous parasite of *Wallabia bicolor*, and has not been found in any other macropod. Details of the buccal capsule are visible in the fresh material so the description can now be amended. Measurements of the specimens are similar to those of the original description.

Cuticle strongly ringed; body widest in posterior half, tapering slowly to head, very rapidly behind vulva, and very little to bursa. A low, thick cuticular collar anteriorly bears submedian papillae and unobtrusive, slit-like, amphid openings. Mouth circular without lips, Six short, triangular, cuticular projections around mouth not easily seen in side view but

Figs 34-40. *Popovastrongylus irma*. 34, head; 35, head with buccal capsule dorsoventrally compressed; 36, oesophageal region; 37-38, bursa in lateral and dorsal views; 39 and 40. Posterior ends of younger and older females, respectively. Figs 34 and 35 to same scale. Figs 37 and 38 to same scale. Figs 39 and 40 to same scale. Figs 41-44. *Arundelia dissimilis*. 41-43. Head, in lateral, dorsal and en face views respectively; 44, oesophageal region. Figs 42-43 to same scale. Figs 45-46. *Dorcopsinema dorcopsis*. 45. Head of male, antero-lateral view; 46, head of female, sub-lateral view.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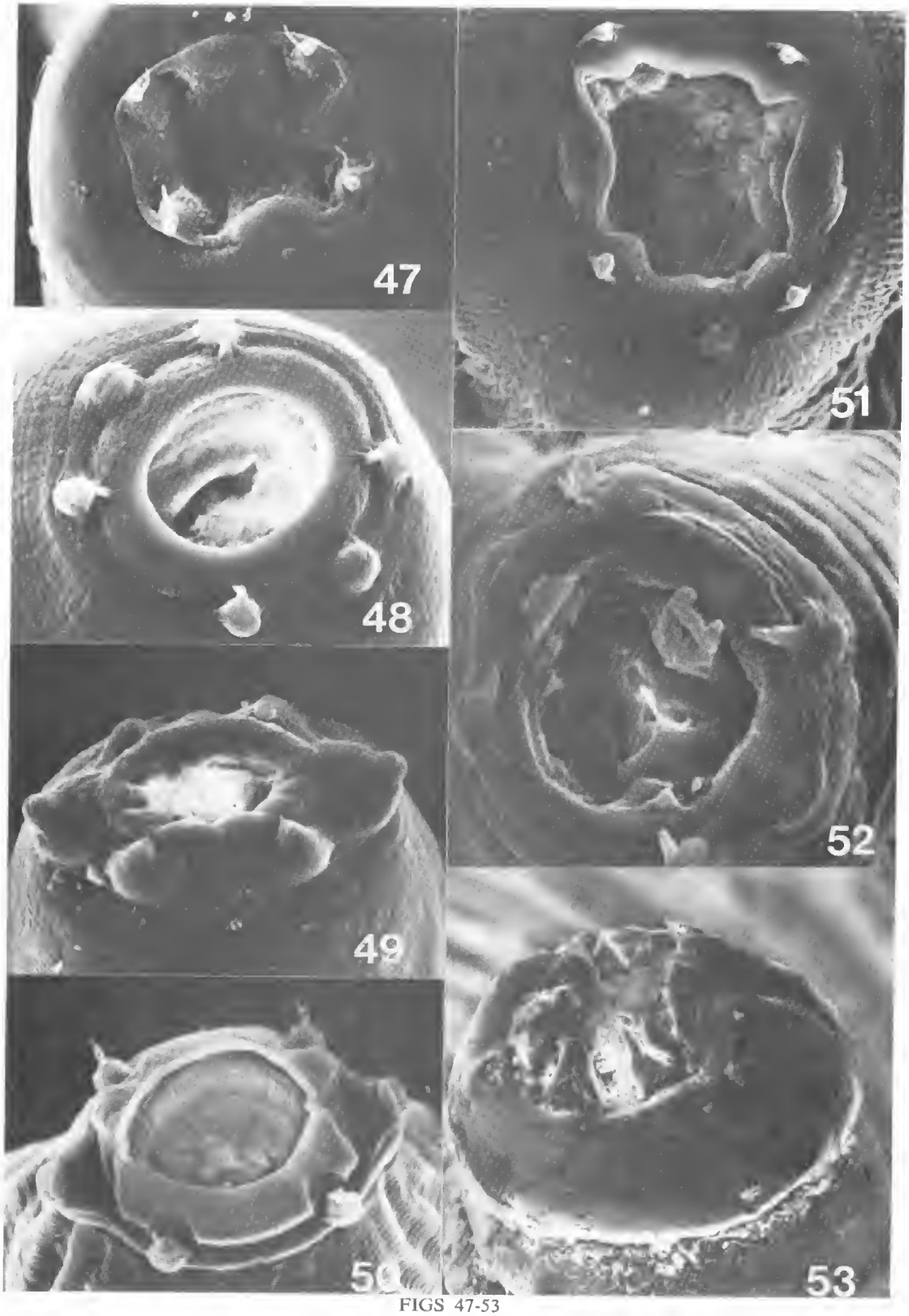
FIGS 34-46



FIGS 47-53

form a sort of leaf crown but do not appear to arise from the buccal capsule as do the elements of the leaf crown in *Cloacina* species. Buccal capsule, circular in transverse sections, shallow, but with thick walls. Large, conical, chitinised structure rises dorsally in buccal cavity from anterior end of oesophagus; this is hollow, open at apex, and connected at its base with a duct in dorsal wall of oesophagus. In *en face* view, a ventral thickening and groove in the capsule wall is associated with a similar but smaller duct from oesophagus, which has not been seen in any side view of the anterior end.

Oesophagus cylindrical in its anterior third, at end of which lies the nerve ring, and then widens gradually to its posterior end. No terminal bulb. Thread-like cervical papillae lie anterior to nerve ring; excretory pore at about three-quarters length of oesophagus from anterior end.

Size of eggs in the vagina, and newly laid in the vaginal extrusion, is 130–132 x 65–70 μm, much greater than in original material (possibly measured in the uterus).

Dorcopsinema n.gen.

Trichonematidae: Zoniolaiminae: Large worms; anterior end with wide collar bearing cephalic papillae and amphids, perioral cuticle forming eight lip-like processes; buccal capsule lightly chitinised, more or less cylindrical; oesophagus long, cylindrical. Male: spicules alate, long; bursa entire, dorsal lobe long, ventral rays arising together, externo-dorsal arising with laterals, dorsal ray bifurcating and with two lateral branches from point of bifurcation. Female: tail conical, vulva shortly in front of anus. Parasites of macropod marsupials.

Type species: *D. dorcopsis* (Baylis), syn. *Macropostrongylus dorcopsis* Baylis, 1940.

The structure of the head does not closely resemble that of any other species. The lip-like processes around the mouth are very like those of *Labiostrongylus* and *Zoniolaimus* but the cephalic papillae are borne on the collar. In *Z. labiatus* Johnston & Mawson (1939) there is a collar around the anterior end bearing the cephalic papillae, and surrounding the "lips", but the oesophagus ends in a bulb.

Dorcopsinema dorcopsis (Baylis) n.comb.

FIGS 45–46, 53

Macropostrongylus dorcopsis Baylis, 1940, p. 313, from *Dorcopsis mulleri* (*D. veterum*) from Papua New Guinea.

A male and a female paratype have been examined. The presence of a very thick collar, the structure of the buccal capsule (no longitudinal ridges, no anterior projections) and the shape of the oesophagus differentiate the species from those of *Macropostrongylus*.

The "tooth-like processes" around the mouth "like a leaf crown" described by Baylis are in fact not thin and chitinised like teeth (or a leaf crown) but are more like fleshy lobes, with broad bases, mucronate at the free ends and grooved on their outer surfaces. In the male these processes are almost closed over the mouth and in the female are drawn back in a "mouth open" position (Figs 45, 46). As described by Baylis, the anterior end is surrounded by a wide collar on which are the small pointed submedian papillae and the amphids.

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Fig. 47. *Macropostrongylus macrostoma* (x404); Fig. 48. *Popovastrongylus wallabiae* (x600); Fig. 49. *P. pearsoni* (x600); Fig. 50. *P. irma* (x600); Fig. 51. *M. yorkei* (x404); Fig. 52. *Arundelia dissimilis* (x1,500); Fig. 53. *Dorcopsinema dorcopsis* (x240).

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